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| 10/520,075 | 09/28/2005 | Terry P Bowen | 17885 A | 9531 |

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| EXAMINER |
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LUU, THANH X

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| ART UNIT | PAPER NUMBER |
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2878

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 03/15/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/520,075 | Applicant(s) BOWEN ET AL. | |
| | Examiner Thanh X. Luu | Art Unit 2878 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to amendments and remarks filed February 21, 2007. Claims 1 and 3-24 are currently pending.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second optical component comprising a substrate, a second optical axis of the substrate; and all the method steps in preparing the first optical component for incorporation into an optical subassembly must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

3. Claims 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 5-7, the claims are dependent from a cancelled claim.

Regarding claim 7, "are optically connector" is improper and does not make sense.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 16 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Takemura (JP 2001-215370).

Regarding claims 16 and 18-20, Takemura discloses (see Figs. 2 and 3) a method of preparing a first optical component (10) for incorporation into an optical subassembly (30), the optical subassembly having a top and bottom orientation and

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comprising a platform defining an upward-facing v-groove (at 31) with walls of a certain pitch, the method comprising: defining the location of at least two parallel v-grooves (12) in a wafer to define at least one center portion having a reference surface between the two v-grooves and a side portion on either side of the center portion; defining a fiducial location (at 11) for mounting a first optical element on the center portion between the parallel v-grooves, the fiducial being a certain distance relative to the parallel v-grooves; etching the v-grooves to define side walls of the center portion; creating a fiducial at the fiducial location; securing an optical element (3a) to the center portion relative to the fiducial; separating (at D) the side portions from the center portion along the v-grooves to define the first optical component; inverting the first optical component in the upwardly facing v-groove of the platform such that the first optical component is supported by the platform solely by the contact of the sides against the walls.

Takemura also discloses (see paragraph [0019]) etching.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3, 4, 8-11, 13-15 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinen et al. (U.S. Patent 4,768,199) in view of Matsumoto (U.S. Patent 5,849,204).

Regarding claims 1, 3, 4, 11, 13-15 and 23, Heinen et al. disclose (see Figs. 1-5)

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an optical assembly having a top and bottom orientation and comprising: a platform (111) defining an upward-facing v-groove (113) with walls of a certain pitch; a first optical component (2) having a substrate with a downward facing reference surface and two sides (8, 9), each side being beveled at the certain pitch outwardly from the reference surface, and comprising at least one optical element (7) secured to the reference surface, the optical element having a first optical axis (at 7); and a second optical component (21) having an outer periphery with at least two contact points and a second optical axis, the second optical component being disposed in the v-groove such that the contact points contact the walls of the V-groove and the second optical axis is coaxial with the first optical axis. The laser (7) is a semiconductor active element that defines the optical axis. Heinen et al. do not specifically disclose that the first optical component being supported by the platform solely by the contact of the sides against the walls. Matsumoto teaches (see Figs. 4A and 4B) a similar device in which support is solely by the contact of the sides on a v-groove. Thus, Matsumoto recognizes that other support is not required. Heinen et al. further teaches (see col. 4, lines 61-65) it is the contact of the sides that is most important for exact positioning. Thus, one of ordinary skill in the art would appreciate that the contact or support created by surfaces 12 and 4 is incidental and would not affect the nature and operation of the device. It would have been obvious to one of ordinary skill in the art at the time the invention was made provide only sole support by the sides as claimed in the invention of Heinen et al. in view of Matsumoto for exact positioning as taught.

Regarding claims 8-10, Heinen et al. in view of Matsumoto disclose the claimed

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invention as set forth above. Heinen et al. and Matsumoto do not specifically disclose the type of materials as claimed or the pitch. However, choosing the particular type of material and pitch is a matter of design choice and would require only routine skill in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made provide the same materials for each component in the apparatus of Heinen et al. in view of Matsumoto to simplify manufacturing.

8. Claims 5-7, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinen et al. in view of Matsumoto and further in view of Fukuda et al. (U.S. Patent 6,931,215).

Regarding claims 5-7, Heinen et al. in view of Matsumoto disclose the claimed invention as set forth above. Heinen et al. further discloses a laser diode. Heinen et al. and Matsumoto do not specifically disclose a monitor diode as claimed. Fukuda et al. teach (see Fig. 1) a similar module having a laser diode (1) optically connected to a monitor diode. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a monitor diode on the substrate as claimed in the apparatus of Heinen et al. in view of Matsumoto and Fukuda et al. to provide feedback for intensity control and improve transmission as taught.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heinen et al. in view of Matsumoto and further in view of Sherrer (U.S. Patent 6,786,649).

Regarding claim 12, Heinen et al. in view of Matsumoto disclose the claimed invention as set forth above. Heinen et al. and Matsumoto do not specifically disclose the second optical component comprises a substrate having beveled sides as claimed.

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Sherrer teaches (see Figs.) a fiber waveguide having beveled sides. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a beveled waveguide substrate as claimed in the apparatus of Heinen et al. in view of Matsumoto and Sherrer to obtain a better more stable fit.

10. Claims 16, 18-20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinen et al. in view of Takemura (JP 2001-215370).

Regarding claims 16, 18-20 and 24, Heinen et al. disclose the apparatus as set forth above. Heinen et al. do not specifically disclose sole support and the method steps as claimed. Takemura discloses (see Figs. 2 and 3) a method of preparing a first optical component (10) for incorporation into an optical subassembly, comprising: defining the location of at least two parallel v-grooves (12) in a wafer to define at least one center portion between the two v-grooves and a side portion on either side of the center portion; defining a fiducial location (at 11) for mounting an optical element on the center portion between the parallel v-grooves, the fiducial being a certain distance relative to the parallel v-grooves; etching the v-grooves; creating a fiducial at the fiducial location; securing an optical element (3a) to the center portion relative to the fiducial; and separating (at D) the side portions from the center portion. Takemura also discloses (see paragraph [0019]) etching and solely supporting as claimed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such a method and provide sole support as claimed in the apparatus of Heinen et al. in view of Takemura to more easily mass produce the devices.

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over

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Takemura in view of Uekawa et al. (U.S. Patent 6,934,449).

Regarding claim 17, Takemura discloses the claimed invention as set forth above. Takemura does not specifically disclose a photolithography step as claimed. Uekawa et al. teach (see col. 5, lines 55-60) defining parts by a photolithography process. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a photolithography step as claimed in the method of Takemura in view of Uekawa et al. to efficiently and cost-effectively define such elements.

12. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takemura in view of Tabuchi (U.S. Patent 5,909,524).

Regarding claims 21 and 22, Takemura discloses the claimed invention as set forth above. Takemura does not specifically disclose solder pads as claimed. Tabuchi teaches (see Fig. 86) using solder pads (181) as claimed to obtain better bonding. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use solder pads as claimed in the method of Takemura in view of Tabuchi to obtain a more resilient device.

Response to Arguments

13. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is 571-272-2441. The examiner can normally be reached on M-F 6:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

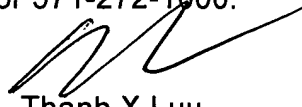
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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Thanh X Luu
Primary Examiner
Art Unit 2878

03/2007